delayed by differing portions of a time slot, wherein over-the-air combination of transmission signals from each set will allow a receiver to form full-rate signals.

16. The apparatus of claim **15**, wherein each of the one or more sets of multiple second radio frequency chains have a pair of second radio frequency chains.

17. The apparatus of claim **1**, further comprising informing a user equipment that a certain set of channel state information is for the plurality of first radio frequency chains and an other set of channel state information is for the plurality of second radio frequency chains.

18. The apparatus of claim **17**, wherein the channel state information for the certain set is different from the channel state information for the other set.

19. The apparatus of claim **1**, further comprising one or more processors and one or more memories including computer program code, wherein the one or more memories and the computer program code configured, with the one or more processors, to cause the apparatus to perform at least the following:

to select precoding to meet a selected number of multiple beams and corresponding user equipment;

to select sets of multiple antennas for the second radio frequency chains;

to configure sets of the second radio frequency chains corresponding to the selected multiple antennas to provide over-the-air combining of less than full rate switched signals.

20. The apparatus of claim **1**, further comprising one or more processors and one or more memories including computer program code, wherein the one or more memories and the computer program code configured, with the one or more processors, to cause the apparatus to perform at least the following:

to perform coarse precoding of the antenna array to meet a selected number of multiple beams and user equipment, the coarse precoding using the plurality of second radio frequency chains; and

to perform fine precoding of the antenna array to meet the selected number of multiple beams and the user equipment, the fine precoding using the plurality of first radio frequency chains.

21. The apparatus of claim **1**, further comprising using the antenna array to perform beamforming with multiple beams to multiple user equipment.

22. (canceled)

23. A method, comprising:

for an apparatus comprising a plurality of first radio frequency chains able to be coupled to a plurality of first antennas from an antenna array, configuring a plurality of second radio frequency chains to perform precoding of the antenna array to meet a selected multiple number of beams to multiple users, wherein the plurality of second radio frequency chains are configured to be able to be coupled to a plurality of second antennas from the antenna array, wherein the first and second antennas are different, wherein the first radio frequency chains also perform precoding of the multiple number of beams to the multiple users, wherein the first and second radio frequency chains are configured to create radio frequency signals from baseband signals, wherein the first radio frequency chains have a certain functionality, and wherein the second radio frequency chains have a reduced functionality relative to the certain functionality of the first radio frequency chains; and

performing beamforming with the multiple beams to the multiple users.

24. The method of claim **23**, wherein the certain functionality of the first radio frequency chains is based at least in part on a plurality of features and wherein the second radio frequency chains have a reduced functionality because one or more features for the second radio frequency chains are relaxed relative to identical one or more features for the first radio frequency chains.

25. (canceled)

26. (canceled)

27. (canceled)

28. The apparatus of claim **1**, further comprising the antenna array.

29. The apparatus of claim **5**, wherein at least one of the first radio frequency chains comprises a second power amplifier able to amplify a signal over a range of powers.

30. The apparatus of claim **9**, wherein the switching between the output routed toward the antenna and between the resistor to ground for the at least one of the second radio frequency chains occurs at a rate that is half of the first rate or less than half of the first rate.

31. The method of claim **23**, wherein at least one of the first radio frequency chains comprises a second power amplifier able to amplify a signal over a range of powers, and wherein at least one of the second radio frequency chains comprises a power amplifier having only two states: an on state where the power amplifier transmits at full power; and an off state where the power amplifier is silent.

32. The method of claim **31**, wherein at least one of the first radio frequency chains runs a first rate and wherein the method further comprises switching the power amplifier for the at least one of the second radio frequency chains between the on and off states at a rate that is less than the first rate.

33. The method of claim **31**, wherein at least one of the first radio frequency chains runs at first rate and wherein the method further comprises switching a signal coupled to the output of the power amplifier for the at least one of the second radio frequency chains between an output routed toward the antenna and between a resistor to ground, wherein the switching occurs at a rate that is less than the first rate and the power amplifier is kept in the on state.

34. A computer program product comprising a computer-readable storage medium bearing computer program code embodied therein that cause an apparatus, in response to execution of the computer program code, to perform:

for the apparatus that comprises a plurality of first radio frequency chains able to be coupled to a plurality of first antennas from an antenna array, configuring a plurality of second radio frequency chains to perform precoding of the antenna array to meet a selected multiple number of beams to multiple users, wherein the plurality of second radio frequency chains are configured to be able to be coupled to a plurality of second antennas from the antenna array, wherein the first and second antennas are different, wherein the first radio frequency chains also perform precoding of the multiple number of beams to the multiple users, wherein the first and second radio frequency chains are configured to create radio frequency signals from baseband signals, wherein the first radio frequency chains have a certain functionality, and wherein the second radio frequency chains have a